

Application Serial No: 10/583,025

Responsive to the Office Action mailed on: July 9, 2009

REMARKS

This Amendment is in response to the final Office Action mailed on July 9, 2009.

Claim 2 is amended to fix a minor antecedent basis issue. No new matter is added.

Claims 1-8 are pending.

§103 Rejections:

Claims 1-5, 7 and 8 are rejected as being unpatentable over Wendt (US Patent No. 3,681,977) either alone or in view of Ito (US Publication No. 2002/0057540). This rejection is traversed.

Claims 1 is directed to an ultrasonic diagnostic apparatus that recites, among other features, a transmission power source a plurality of mode-specific step-up power sources for outputting a voltage corresponding to a plurality of signal processing modes, and includes a mode changeover switch provided between the output side of the mode-specific step-up power sources and the output side capacitor for switching between the mode-specific step-up power sources that supply power to the transmission pulse generators. Claim 1 also recites a power regeneration capacitor with a larger capacity than that of the output side capacitor, one electrode terminal of which is connected to a connection point between the power supplying power source and the input side of the mode-specific step-up power sources and the mode changeover switch, and the other electrode terminal of which is connected to ground. Claim 1 further recites that the mode changeover switch is capable of connecting the power regeneration capacitor, instead of the output side of each of the mode-specific step-up power sources, to the output side capacitor.

Wendt or the combination of Wendt and Ito does not teach or suggest these features. The rejection appears to interpret the three gang selector switch 16 as the mode changeover switch of claim 1. However, the switch 16 of Wendt merely connects a flip-flop or a gate circuit to ground so as to switch the flow of a low-voltage control signal (see column 11, line 32-column 13, line 3 and Figure 1 of Wendt). Nowhere does Wendt teach or suggest that the switch 16 is provided between an output side of mode-specific step-up power sources and an output side capacitor for switching between

Application Serial No: 10/583,025

Responsive to the Office Action mailed on: July 9, 2009

the mode-specific step-up power sources that supply power to the transmission pulse generators, as recited in claim 1.

Also, the rejection is not clear as to what portion of Wendt teaches the transmission power source of claim 1. It appears that the positive power supply terminal 232 and the power source connected to the terminal 232 located within the left pulsing circuit 43 of Wendt correspond most closely to the transmission power source of claim 1 (see Figure 4 of Wendt). However, as shown in Figure 1 of Wendt, the left pulsing circuit 43 is separate and distinct from the three gang selector switch 16. Accordingly, Wendt does not teach or suggest a transmission power source that includes a mode changeover switch, as recited in claim 1.

Moreover, nowhere does Wendt teach or suggest that the voltage of the positive power supply terminal 232 and the power source varies depending on the mode. Thus, nowhere does Wendt teach or suggest a transmission power source that includes a plurality of mode-specific step-up power sources for outputting a voltage corresponding to a plurality of signal processing modes.

Further, the rejection appears to interpret the capacitors 67-72 of Wendt as teaching the power regeneration capacitor of claim 1. However, the capacitors 67-72 of Wendt merely connect a waveform circuit to one of flip-flops 55-57 (see Figure 1 of Wendt). Nowhere does Wendt teach or suggest that any of the capacitors 67-72 include one electrode terminal connected to a connection point between the power supplying power source and the input side of the mode-specific step-up power sources and the mode changeover switch, and the other electrode terminal connected to ground. Thus, nowhere does Wendt teach or suggest a power regeneration capacitor having one electrode terminal connected to a connection point between the power supplying power source and the input side of the mode-specific step-up power sources and the mode changeover switch, and the other electrode terminal connected to ground, as recited in claim 1.

Also, it appears that the capacitor 71 with the resistance 98 of Wendt forms a differential circuit that detects an edge portion in an input signal in order to prevent a negative voltage from being applied to the terminal 89 of the diode 83, thereby preventing an inverse current (see column 5, line 65-column 6, line 4 of Wendt). Thus, at least the capacitor 71 of Wendt cannot be considered a power regeneration capacitor.

Application Serial No: 10/583,025

Responsive to the Office Action mailed on: July 9, 2009

Moreover, nowhere does Wendt teach or suggest that the capacitors 67-72 have a larger capacity than that of an output side capacitor. Accordingly, the capacitors 67-72 of Wendt cannot be considered the power regeneration capacitor of claim 1.

Ito does not overcome these deficiencies of Wendt. First, Ito does not teach or suggest a mode changeover switch, as recited in claim 1. Second, Ito does not teach or suggest a transmission power source that includes a plurality of mode-specific step-up power sources for outputting a voltage corresponding to a plurality of signal processing modes. Third, while Ito may teach the use of power regeneration capacitors, Ito does not teach a power regeneration capacitor that is connected to a mode changeover switch, as recited in claim 1. Also, there would be no motivation to replace the capacitors 67-72 of Wendt with the capacitors of Ito, as the capacitors 67-72 of Wendt are provided for a different purpose and produce a different effect than the capacitor of Ito, i.e. connecting a waveform circuit to one of flip-flops 55-57.

For at least these reasons, claim 1 is not suggested by Wendt alone or the combination of Wendt and Ito and should be allowed. Claims 5-7 depend from claim 1 and should be allowed for at least the same reasons.

Claim 2 is directed to an ultrasonic diagnostic apparatus that recites, among other features, a transmission power source that includes a plurality of mode-specific step-down power sources for outputting a voltage corresponding to each of a plurality of signal processing modes, and includes a mode changeover switch provided between the output side of the mode-specific step-down power sources and the output side capacitor for switching between the mode-specific step-down power sources that supply power to the transmission pulse generators. Claim 2 also recites a power regeneration capacitor, including a plurality of capacitors, with a larger capacity than that of the output side capacitor, one electrode terminal of which is connected to a connection point between the power supplying power source and the input side of the mode-specific step-down power sources and the mode changeover switch, and the other electrode terminal of which is connected to ground.

Wendt or the combination of Wendt and Ito does not teach or suggest these features. The rejection appears to interpret the three gang selector switch 16 as the mode

Application Serial No: 10/583,025

Responsive to the Office Action mailed on: July 9, 2009

changeover switch of claim 2. However, the switch 16 of Wendt merely connects a flip-flop or a gate circuit to ground so as to switch the flow of a low-voltage control signal (see column 11, line 32-column 13, line 3 and Figure 1 of Wendt). Nowhere does Wendt teach or suggest that the switch 16 is provided between an output side of mode-specific step-down power sources and an output side capacitor for switching between the mode-specific step-down power sources that supply power to the transmission pulse generators, as recited in claim 2.

Also, the rejection is not clear as to what portion of Wendt teaches the transmission power source of claim 2. It appears that the positive power supply terminal 232 and the power source connected to the terminal 232 located within the left pulsing circuit 43 of Wendt correspond most closely to the transmission power source of claim 1 (see Figure 4 of Wendt). However, as shown in Figure 1 of Wendt, the left pulsing circuit 43 is separate and distinct from the three gang selector switch 16. Accordingly, Wendt does not teach or suggest a transmission power source that includes a mode changeover switch, as recited in claim 2.

Moreover, nowhere does Wendt teach or suggest that the voltage of the positive power supply terminal 232 and the power source varies depending on the mode. Thus, nowhere does Wendt teach or suggest a transmission power source that includes a plurality of mode-specific step-down power sources for outputting a voltage corresponding to a plurality of signal processing modes.

Further, the rejection appears to interpret the capacitors 67-72 of Wendt as teaching the power regeneration capacitor of claim 1. However, the capacitors 67-72 of Wendt merely connect a waveform circuit to one of flip-flops 55-57 (see Figure 1 of Wendt). Nowhere does Wendt teach or suggest that any of the capacitors 67-72 include one electrode terminal connected to a connection point between the power supplying power source and the input side of the mode-specific step-down power sources and the mode changeover switch, and the other electrode terminal connected to ground. Thus, nowhere does Wendt teach or suggest a power regeneration capacitor having one electrode terminal connected to a connection point between the power supplying power source and the input side of the mode-specific step-down power sources and the mode

Application Serial No: 10/583,025
Responsive to the Office Action mailed on: July 9, 2009

changeover switch, and the other electrode terminal connected to ground, as recited in claim 2.

Also, it appears that the capacitor 71 with the resistance 98 of Wendt forms a differential circuit that detects an edge portion in an input signal in order to prevent a negative voltage from being applied to the terminal 89 of the diode 83, thereby preventing an inverse current (see column 5, line 65-column 6, line 4 of Wendt). Thus, at least the capacitor 71 of Wendt cannot be considered a power regeneration capacitor.

Moreover, nowhere does Wendt teach or suggest that the capacitors 67-72 have a larger capacity than that of an output side capacitor. Accordingly, the capacitors 67-72 of Wendt cannot be considered the power regeneration capacitor of claim 2.

Ito does not overcome these deficiencies of Wendt. First, Ito does not teach or suggest a mode changeover switch, as recited in claim 1. Second, Ito does not teach or suggest a transmission power source that includes a plurality of mode-specific step-down power sources for outputting a voltage corresponding to a plurality of signal processing modes. Third, while Ito may teach the use of power regeneration capacitors, Ito does not teach a power regeneration capacitor that is connected to a mode changeover switch, as recited in claim 2. Also, there would be no motivation to replace the capacitors 67-72 of Wendt with the capacitors of Ito, as the capacitors 67-72 of Wendt are provided for a different purpose and produce a different effect than the capacitor of Ito, i.e. connecting a waveform circuit to one of flip-flops 55-57.

For at least these reasons, claim 2 is not suggested by Wendt alone or the combination of Wendt and Ito and should be allowed. Claims 3, 4 and 8 depend from claim 2 and should be allowed for at least the same reasons.

Claim 6 is rejected as being unpatentable over Wendt or the combination of Wendt and Ito and further in view of Niemi (US Publication No. 2004/0008094). This rejection is traversed. Claim 6 depends from claim 1 and should be allowed for at least the same reasons discussed above. Applicants do not concede the correctness of this rejection.

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Responsive to the Office Action mailed on: July 9, 2009

Conclusion:

Applicants respectfully assert that the pending claims are in condition for allowance. If a telephone conference would be helpful in resolving any issues concerning this communication, please contact Applicants' primary attorney-of record, Douglas P. Mueller (Reg. No. 30,300), at (612) 455-3804.



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Respectfully submitted,

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